

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Original) A trocar-cannula complex for use in minimally invasive surgical procedures performed through a port site of a patient, comprising:

a trocar; and

a fluid delivery cannula comprising a tubular structure including a central lumen receiving said trocar and an outer surface adapted to interface with tissue at the port site, said fluid delivery cannula further including at least one fluid passage having an inlet and an outlet, said outlet communicating with said outer surface for delivering fluid thereto.

2. (Original) The trocar-cannula complex of claim 1, further comprising a hub portion having valving components operative to deliver insufflation gas to the patient, said hub portion being coupled to said fluid delivery cannula in a releasable manner.

3. (Withdrawn) The trocar-cannula complex of claim 1, further comprising a hub portion having valving components operative to deliver insufflation gas to the patient, said hub portion being formed integrally with said fluid delivery cannula.

4. (Withdrawn) The trocar-cannula complex of claim 3, wherein said hub portion and said cannula are integrally molded from a polymeric material.

5. (Withdrawn) The trocar-cannula complex of claim 1, wherein said tubular structure is radially expandable.

6. (Original) A trocar-cannula complex for use in minimally invasive surgical procedures performed through a port site of a patient, comprising:

a trocar; and

a fluid delivery cannula comprising a multilayer tubular structure including a central lumen receiving said trocar and an outer surface adapted to interface with tissue at the port site, said fluid delivery cannula further including at least one fluid passage having an inlet and an outlet and being at least partially positioned between two separate layers of said tubular structure, said outlet communicating with said outer surface for delivering fluid thereto.

7. (Original) The trocar-cannula complex of claim 6, wherein said two separate layers include an inner rigid tubular member and an outer sheath carried on said inner rigid tubular member, said inner rigid tubular member including a grooved surface for providing said fluid passage and said outer sheath operative to seal said fluid passage against leakage.

8. (Original) The trocar-cannula complex of claim 7, wherein said outer sheath is comprised of a polymeric material carried on said grooved surface.

9. (Original) The trocar-cannula complex of claim 8, wherein said polymeric material includes PTFE.

10. (Original) The trocar-cannula complex of claim 8, wherein said outer sheath is heat shrunk onto said grooved outer surface.

11. (Withdrawn) The trocar-cannula complex of claim 7, wherein said outer layer is radially expandable.

12. (Original) A fluid delivery cannula for use in minimally invasive surgical procedures performed through a port site of a patient, comprising:

a tubular structure including a central lumen configured to receive a trocar and an outer surface adapted to interface with tissue at the port site, said tubular structure further including at least one fluid passage having an inlet and an outlet, said outlet communicating with said outer surface for delivering fluid thereto.

13. (Original) The fluid delivery cannula of claim 12, wherein said tubular structure is formed by multiple layers and said fluid passage is located between at least two of said layers.

14. (Original) The fluid delivery cannula of claim 12, further comprising a hub portion having valving components operative to deliver insufflation gas to the patient, said hub portion being coupled to said tubular structure in a releasable manner.

15. (Withdrawn) The fluid delivery cannula of claim 12, further comprising a hub portion having valving components operative to deliver insufflation gas to the patient, said hub portion being formed integrally with said tubular structure.

16. (Withdrawn) The fluid delivery cannula of claim 15, wherein said hub portion and said tubular structure are integrally molded from a polymeric material.

17. (Original) The fluid delivery cannula of claim 12, wherein tubular structure further comprises at least two separate layers include an inner rigid tubular member and an outer sheath carried on said inner rigid tubular member, said inner rigid tubular member including a grooved surface for providing said fluid passage and said outer sheath operative to seal said fluid passage against leakage.

18. (Original) The fluid delivery cannula of claim 17, wherein said outer sheath is comprised of a polymeric material carried on said grooved surface.

19. (Original) The fluid delivery cannula of claim 18, wherein said polymeric material includes PTFE.

20. (Original) The fluid delivery cannula of claim 18, wherein said outer sheath is heat shrunk onto said grooved outer surface.

21. (Withdrawn) The fluid delivery cannula of claim 12, wherein said tubular structure is radially expandable.

22. (Withdrawn) A fluid delivery cannula for use in minimally invasive surgical procedures performed through a port site of a patient, comprising:

a radially expandable tubular structure including a central lumen configured to receive a trocar and an outer surface adapted to interface with tissue at the port site, said tubular structure further including a distal end and at least one fluid passage having an inlet and an outlet, said outlet communicating with at least one of said outer surface and said distal end for delivering fluid thereto.

23. (Original) A method of performing a minimally invasive surgical procedure using a trocar-cannula complex with a cannula portion having a lumen configured to receive a trocar and a separate fluid passage configured to receive fluid from an inlet on the trocar-cannula complex and deliver the fluid to an outlet on an outside surface of the cannula portion, the method comprising:

introducing the trocar-cannula complex through a port site of a patient,
coupling the inlet of the fluid passage to a source of fluid, and
delivering the fluid from the inlet through the fluid passage and the outlet
on the outside surface of the cannula portion into contact with the patient.

24. (Original) The method of claim 23, wherein the fluid is an irrigant.

25. (Original) The method of claim 23, wherein the fluid includes a pain medication.

26. (Original) The method of claim 23, wherein the fluid is a tissue adhesive.

27. (Original) The method of claim 23, wherein the fluid is delivered to the inlet by a pump.

28. (Original) The method of claim 23, wherein the fluid is delivered to the inlet by a syringe.

29. (Withdrawn) A method of performing a minimally invasive surgical procedure using a trocar and a cannula having at least a portion that is radially expandable, the cannula further including a distal end, an outside surface, a lumen configured to receive the trocar, and a fluid passage extending from an inlet to an outlet on at least one of the outside surface and the distal end, the method comprising:

introducing the cannula and trocar through a port site of a patient,
coupling the inlet of the fluid passage to a source of fluid, and
delivering the fluid from the inlet through the fluid passage to the outlet
and into contact with the patient.

30. (Withdrawn) The method of claim 29, wherein the step of introducing a cannula through a port site further comprises:

introducing a radially expandable cannula through the port site.

31. (Withdrawn) The method of claim 30, wherein the step of introducing a radially expandable cannula through a port site further comprises:

using a needle introducer with the radially expandable cannula positioned on the outside thereof,

withdrawing the needle introducer from the radially expandable cannula leaving the radially expandable cannula in the port site, and

inserting the trocar through the radially expandable cannula and the port site.